Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
LPTV, TV Translator, and FM Broadcast Station Reimbursement	)	MB Docket No. 18-214
	)	
	)	
Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions	)	GN Docket No. 12-268
	)	

COMMENTS OF MICROSOFT CORPORATION

This proceeding presents the Commission with an opportunity to comply with Congress's directive to reimburse expenses incurred during the Special Displacement Window for LPTV and TV translator stations (collectively, "low power stations") in a manner that also advances the FCC's goal of improving spectral efficiency.[1] The FCC can achieve this "win-win" outcome without any new regulatory mandates or market disruption by finding that the modest cost of purchasing a filter that complies with the Commission's full service transmission mask for low power broadcasters would be a "reasonably incurred" cost.

Use of the more efficient spectral mask will result in less unnecessary noise emitted in the broadcast television band, improving the utility of the band for both licensed and unlicensed operations, and can be achieved at minimal expense. Reduced noise will improve local service providers' ability to provide rural broadband service in unused white space channels and ease the

[1] The Commission endorsed the goal of promoting efficient use of spectrum in the Incentive Auction Report and Order. *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Report and Order, 29 FCC Rcd. 6567, 6822 ¶ 623 (2014) ("Incentive Auction Report and Order").

development and deployment of future technologies—including broadcast television technologies, White Spaces technologies used to deliver rural broadband, and others not yet envisioned. This determination will also advance the broadcast repack by providing certainty for stations that may have been required to upgrade to new filters in order to operate in the more congested post-repack television band.

I. INEFFICIENT FILTERING BY SOME RURAL BROADCASTERS REDUCES THE VALUE OF SPECTRUM FOR ALL USERS.

The Commission's rules allow low power broadcasters to choose from a set of three different adjacent-channel emissions limits: the simple mask, stringent mask, and full service mask.[2] A broadcaster's choice among these three options has no impact on the broadcaster's own operations except for the small difference in cost of the equipment needed to comply with the more efficient limits. However, this choice has a significant impact on the overall use and value of the band. The most efficient of these masks, the full service mask, requires emissions 6 MHz away from a broadcaster's channel edge to be attenuated by 110 dB.[3] The stringent mask, meanwhile, requires attenuation of only 76 dB,[4] while the simple mask requires only 71 dB attenuation.[5] Therefore, noise levels on the second adjacent channel to a station using a simple mask can be 39 dB—or nearly 8,000 times—higher than if the station used a full service mask. These three masks also govern emissions on the first adjacent channel to a broadcast station. A similar pattern holds in this case, with the simple and stringent masks permitting significantly more interference in the first adjacent channel than the full service mask, as depicted below.

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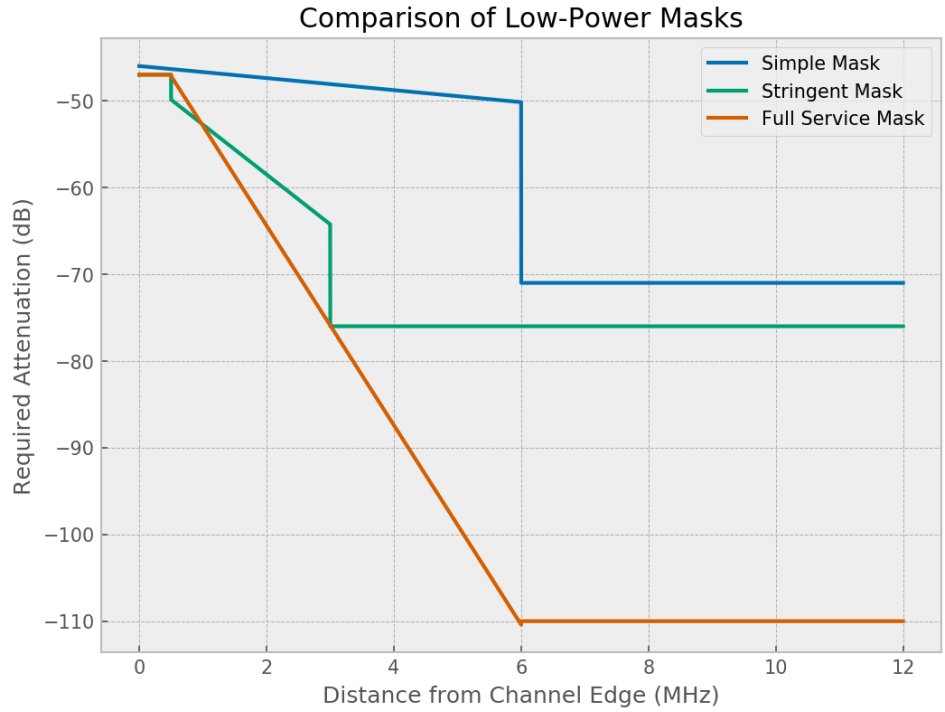
2 47 C.F.R. § 74.794(a).

3 *Id.* § 74.794(a)(2)(iii).

4 *Id.* § 74.794(a)(2)(ii).

5 *Id.* § 74.794(a)(2)(i).



A review of the Commission's licensing data for low power broadcast stations indicates that many low power stations already comply with a full service mask.[6] Urban stations appear to rely disproportionately on the use of full service masks to allow a low power station to operate in geographic and spectral proximity to full power stations, because low power broadcasters are not permitted to cause harmful interference to full power licensees.[7] Compliance with a full service mask appears to have become more common in the last year, which may reflect increased spectral constraints on low power broadcasters as they adapt to a more densely packed band in the wake of the Incentive Auction and post-auction repack.

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6 *See* FCC, *Licensing and Management System: LMS Public Database Files*, https://enterpriseefiling.fcc.gov/dataentry/public/tv/lmsDatabase.html (last visited Sept. 26, 2018).

7 47 C.F.R. § 74.703.

Nationwide, however, many low power stations appear to comply only with the least efficient simple mask, with the clear majority of all stations complying with only a simple or stringent mask. These stations—and especially those using only a simple mask—are located predominantly in rural areas where they are able to operate less efficiently without causing harmful interference to existing full power broadcast stations or other low power stations.

To be clear, these stations' use of the least efficient mask reflects perfectly rational behavior on the part of low power broadcast licensees, when considering the impact only on each individual station. Although the cost of complying with the full service mask is low, broadcasters in less spectrally constrained rural environments currently have less incentive to make an investment in more efficient equipment that will benefit the band as a whole, as well as future licensed and unlicensed operations. Nonetheless, the increased noise caused by these inefficient filters generates important externalities, in the form of sharply reduced utility of unused channels, either by unlicensed operations which may suffer reduced range or throughput, or in the form of future burdens when licensees seek to use channels that are currently polluted by unnecessarily high noise levels.

II. REIMBURSEMENT FOR MORE EFFICIENT FILTERS IS PERMITTED BY THE SPECTRUM ACT.

The Reimbursement Expansion Act instructs the Commission to reimburse low power stations for costs "reasonably incurred" in order to modify their facilities as a result of the reorganization of broadcast television spectrum.[8] Previously, the Commission has, in the context of full power and Class A stations, interpreted this to mean that only expenses incurred to obtain

[8] 47 U.S.C. § 1452(k)(1).

"comparable" facilities would be reimbursable[9] and it has tentatively concluded that it will not cover facility "upgrades."[10]

The Commission has *also* tentatively concluded, however, that the "comparability" requirement would not be appropriate to apply to low power broadcasters because, unlike full power broadcasters, low power stations may be required to reduce power, change locations, or potentially make other facility changes in order to operate their new facilities.[11] Notably, the Commission has not indicated that it plans to assess whether expenses triggered by a broadcaster's new location, power level, or other changes are actually necessary to their continued operation. For example, it apparently does not intend to scrutinize those choices to verify that there was no other way that a broadcaster could have stayed on the air at a lower cost at a different location, a different power level, or through other means.

The statutory limitation that costs be "reasonably incurred" as part of the transition provides meaningful flexibility, but also imposes some clear boundaries. Just as the Commission is able to allow reimbursement for low power facilities that are not comparable to their pre-repack facilities without a searching analysis to determine whether a station has chosen the absolute lowest-cost strategy for remaining on the air, the Commission can and should also conclude that the purchase of a spectrally efficient filter is "reasonable."

Importantly, it has already concluded that costs may be considered "reasonably incurred" to the extent they promote spectral efficiency. In providing guidance to full power broadcasters

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9 Incentive Auction Report and Order at 6822–23 ¶¶ 623–626.

10 *LPTV, TV Translator, and FM Broadcast Station Reimbursement*, Notice of Proposed Rulemaking and Order, FCC 18-113, MB Docket No. 18-214, GN Docket No. 12-268, ¶ 43 (rel. Aug. 3, 2018).

11 *Id.* ¶ 41.

about reimbursement of relocation expenses, the Commission explicitly indicated that it "reserve[d] the right to require broadcasters to take reasonable steps to mitigate costs and share resources where possible, as such efforts may save overall Reimbursement Fund resources *or contribute to more efficient use of the broadcast spectrum*."[12] Indeed, that decision is even better supported in the low power-reimbursement context than in this earlier guidance, because the Commission has already tentatively concluded that low power stations may be reimbursed for non-comparable facilities.

Moreover, many low power broadcasters have or will purchase new filters as part of the transition. Although "tunable" filters exist that would allow a broadcaster to move from one channel to another without buying a new filter, such filters are significantly more expensive and therefore have seen very limited deployment by low power broadcasters. Consequently, the real question is not whether the purchase of a filter is "reasonably incurred," because most low power stations will be changing channels in order to stay on the air, clearly necessitating the purchase of a new filter.[13] The only relocation cost at issue is the limited increased marginal cost of a full service filter, relative to the cost of a less efficient filter a broadcaster might otherwise have purchased. Such a filter may not be strictly necessary in every case. But the statute does not impose a "necessary" standard, but instead includes a "reasonably incurred" standard—and it is plainly within the Commission's discretion to conclude that the small cost of a more efficient filter in order to improve the utility and value of this important band is "reasonably incurred."

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12 Incentive Auction Report and Order at 6822 ¶ 623 (emphasis added).

13 Indeed, the Commission's catalog of reimbursable expenses for full power broadcasters specifically covers new filters. *See Incentive Auction Task Force and Media Bureau Update Price Ranges in Catalog of Reimbursement Expenses*, Public Notice, DA 18-662, MB Docket No. 16-306, GN Docket No. 12-268, Appendix (rel. June 26, 2018).

Furthermore, the use of a more efficient filter is not an "upgrade." A more efficient filter is important to increasing the utility of the broadcast television bands as a whole and is important in allowing low power stations to prepare for the addition of future full power stations, but it will not increase the value of the individual station for operators that purchase such filters. Indeed, Microsoft agrees that both good policy and the provisions of the Spectrum Act place limits on the Commission's ability to reimburse stations for true upgrades to stations' facilities. The Commission should not, and due to limitations on the available funds, cannot, allow a broadcaster to collect a windfall as a result of the Special Displacement Window in the form of new equipment to make an individual station more commercially competitive, such as equipment compatible with the emerging ATSC 3.0 standard. But a targeted rule to improve overall spectral efficiency by reimbursing stations for the cost of complying with a full service mask—a change that does nothing to improve the competitiveness of an individual station or otherwise increase its revenue potential—raises no such concerns.

III. ENCOURAGING COMPLIANCE WITH THE FULL SERVICE MASK WILL PROMOTE RURAL BROADBAND AND IMPROVE THE FUTURE UTILITY OF THE TV BANDS.

Although low power broadcasters are given the choice of complying with a simple, stringent, or full service mask, the emissions permitted under the less efficient simple and stringent masks could cause harmful interference to adjacent services.[14] That is why less efficient masks are more prevalent in rural areas. They can only be used where there is no other licensee in sufficiently close proximity to *receive* this harmful interference.

[14] The Commission's rules explicitly contemplate this possibility. *See, e.g.*, 47 C.F.R. § 74.703(c) (requiring low power broadcasters "to correct any condition of interference which results from the radiation of radio frequency energy outside its assigned channel").

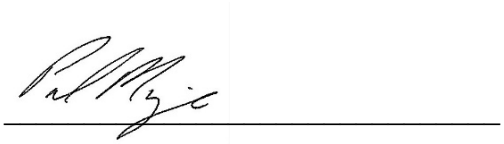
But this does not mean that broadcasters' emission of unnecessary noise into unused channels is cost-free. In fact, this unnecessary noise has significant costs today, and those costs will increase as demand for spectrum grows over time. The most immediate challenge is that the unnecessary noise levels emitted by broadcasters using less efficient filters reduces the ability of internet service providers to provide broadband connectivity in rural communities using White Spaces technologies. Increased noise in unused channels both diminishes the potential range of broadband service and the potential throughput of rural broadband. White Spaces technologies are best suited to facilitate broadband connectivity in the same places where broadcasters are most likely to use inefficient filters: rural communities.

The impact of inefficient filters not only undermines White Spaces technologies today, but also limits the value of the band for any other future licensed or unlicensed use of currently empty channels. To be clear, Microsoft does not seek any new Commission mandate that would require low power broadcasters to comply with a more efficient emissions mask. However, because demand for spectrum continues to increase, today's Commission should take any opportunity it can to lay the groundwork for future use of currently empty channels through careful stewardship of our spectrum resources. This new use could simply be a broadcaster seeking to license a new full power broadcast television station adjacent to a low power broadcaster, or it could be an innovator seeking to use this spectrum in a new way, whether for a new broadcast technology or otherwise. The Commission should therefore not assume that empty channels will stay empty forever, but should instead take advantage of this unique opportunity to facilitate broadcasters' voluntary transition to more efficient filters.

CONCLUSION

The Commission should confirm that purchasing a filter that complies with the full-service transmission mask would be a cost "reasonably incurred" by low power broadcasters. Facilitating a voluntary transition to more efficient filters at a time when broadcasters are already making changes to their facilities would encourage efficient use of spectrum, promote rural broadband, and improve the future utility of the TV bands, without the need for new regulatory mandates or disruption of service.

Respectfully submitted,



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